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# Turf Management

## Purpose

The New Jersey FFA Turf Management Career Development Event includes all aspects of the industry in producing, marketing, utilizing, and maintaining turf as well as related products, equipment, and services. This event will stimulate career interest, encourage proficiency development, and recognize excellence in students of turf management through the agricultural education curriculum. FFA activities are an integral part of the instructional program in Agriculture, Food, and Natural Resources Education.

## Objectives

This event will provide the participant with the ability to:

- Demonstrate the ability to identify turf grasses commonly used in New Jersey
- Demonstrate the ability to identify unhealthy plant conditions due to pests, nutrition, or physiological disorders and mechanical or chemical injuries.
- Demonstrate knowledge of the principles and skills involved in propagation, growth requirements, growing techniques, marketing, and maintenance of turf.
- Demonstrate the ability to identify, select, use and maintain appropriate supplies and equipment for turf management.
- Demonstrate skills in oral and written business communications.
- Understand marketing principles and demonstrate proper sales and service skills.
- Demonstrate the ability to prepare accurate and legible records and reports and to interpret business documents.

## Event Rules

The complete rules, policies and procedures relevant to all New Jersey FFA Career and Leadership Development Events may be found in the CDE & LDE Event Participation Policy: [https://nj.gov/agriculture/ag\\_ed/ffa/activity/CDE\\_LDE\\_Policy.pdf](https://nj.gov/agriculture/ag_ed/ffa/activity/CDE_LDE_Policy.pdf)

- A team will consist of four members. The three highest individual scores will be totaled for the team score. Teams that have fewer than three members are not eligible for team awards, but students may receive individual awards.
- Under no circumstances will any participant be allowed to touch or handle plant materials or other specimens during the event except as specified in certain practicums.
- Each participant must have a clipboard, at least two No. 2 pencils, and a calculator.
- Participants are NOT allowed to use (or have visible) electronic devices during the event, unless for medical reasons or a portion of the event requires usage. This includes cell phones, tablets, etc. Participants will be allowed to use calculators, if specified for that event; however, cell phone calculators and graphing calculators are not permitted! **Failure to adhere to these rules will result in disqualification.**
- All individuals participating will judge in a cooperative manner following the rules set forth by the event coordinator
- No school/chapter will use Rutgers University or Delaware Valley University facilities or locations for the training of teams. Contact with University faculty and staff is permissible. **Penalty will be disqualification.**
- This event will be scored using “Scan-tron” sheets. It is important for students to listen to directions and fill out the sheets correctly to receive credit. Sample scan-tron sheets are available for practice in the State Activity Guide. This event will use the Horticulture (Multipurpose) scan-tron sheet.
- There will be no separate alternate teams.
- This event will be held rain or shine.

- Travel Official Dress is required during the event. Travel Official Dress includes boots or work shoes, black jeans or work pants, etc. as opposed to dress attire. Participants must come to the event prepared to work in adverse weather conditions. The event will be conducted regardless of weather. Participants should have rain gear, warm clothes and closed toed shoes.
- No individuals from the same school/chapter may talk, confer or judge together. Penalty will be loss of score for that section of the event or disqualification for the event. Event coordinator has the authority to make disqualifications.
- A student may not compete in more than one event during the New Jersey FFA Fall Career Development Events.
- The State level competition fee of \$11 per contestant will be paid by the competing school. If a chapter is at least **blue** affiliated, registration to state FFA career development events is waived.

## Event Format

### EQUIPMENT

Materials to be provided by the student:

- Two no. 2 pencils
- Clipboard
- Calculator

Participants are not to bring:

- Cell phones or other electronic devices

### EVENT SNAPSHOT

Below is a brief overview of the Turf Management CDE:

This event consists of four (4) phases:

- Phase I – General Knowledge Exam – 100 points (25 minutes)
- Phase II – Identification of Turf Species, Pests, and Disorders – 100 points (25 minutes)
- Phase III – Equipment Preparation, Maintenance, Problem Solving, and Safety – 50 points (25 minutes)
- Phase IV – Customer Relations, Problem Solving and Job Estimating – 150 points (30 minutes)
  - Part 1 – Site Evaluation – 100 points (20 minutes)
  - Part 2 – Problem Solving – 50 point (10 minutes)

A chapter may have a team of three (3) or four (4). The top three (3) scores are used in determining the team's rank.

Scantron will be used to score this event. At the end of this document is a sample of the sheet used, highlighting where to enter answers. You can get practice sheets here:

[https://nj.gov/agriculture/aq\\_ed/ffa/activity/Scantron.pdf](https://nj.gov/agriculture/aq_ed/ffa/activity/Scantron.pdf)

### INDIVIDUAL ACTIVITIES

#### *Phase I- General Knowledge Examination – 100 points*

- Twenty-five (25) multiple choice question exam (4 points each) to evaluate the participant's knowledge of pesticide use and safety, cultural practices, fertilizers, soil type, irrigation, plant anatomy and proper turf management practices will be given. This phase of the event will be worth 100 points. Time of this phase will be 25 minutes.

#### *Phase II- Identification of turf species, pests, equipment, and disorders – 100 points*

- Twenty-five (25) specimens (4 points each) to be presented as an intact live specimen, photograph, or preserved specimen. Each specimen will be designated by a station number. When the contestant identifies the item, its number is recorded on the official scan-tron. When a problem must be presented with an affected plant, a "disorder" label will be with the item to designate identification of a problem rather than a plant name. This phase of the event will be worth 100 points. Time of this phase will be one minute/specimen for a total of 25 minutes.

#### *Phase III- Equipment preparation, maintenance, problem solving and safety – 50 points*

- Participant will solve five (5) problems (10 points each) dealing with equipment calibration, equipment checks for faulty parts, selection of proper equipment for specific job, identification of a turf problem

caused by equipment or operator malfunction, selection of proper management practices to withstand stress conditions, and proper pesticide label evaluation. A problem situation will be presented with answer choices of possible maintenance needs, corrective actions and/or operating specifications. This phase of the event will be worth 50 points. Time of this phase will be five minutes/problem for a total of 25 minutes.

#### *Phase IV- Customer Relations, Problem Solving, and Job Estimating – 150 points*

- **Part One - Site Evaluation** - Participants will be required to measure and evaluate a turf area for a specific property. Site-specific information will be provided on the day of the event. Total point value is 100 points. The value of each correct answer will be 1.5 points – 50 answers - for identification questions and twenty-five (25) points for determining the plot size. Time for Part 1 - Site Evaluation will be 20 minutes.
- **Part Two – Problem Solving** - This part will be worth 50 points. Time for this Part 2 - will be 10 minutes.

## Scoring

Phase	Activity	Points	Individual Points	Team Points
Phase I	General Knowledge Exam	100	100	300
Phase II	Identification of Turf Species, Pests, and Disorders*	100	100	300
Phase III	Equipment Preparation, Maintenance, Problem Solving and Safety*	50	50	150
Phase IV	Customer Relations, Problem Solving or Job Part 1 - Site Evaluation* Part 2 –Problem Solving	150 Part 1 - 50 Part 2 - 100	150	450
<b>TOTAL</b>			400	1200

\*denotes a hands-on practicum area

### TIEBREAKERS

If ties occur, the following events will be used to determine award recipients:

#### TEAM

1. Written Exam
2. Identification

#### INDIVIDUAL

1. Written Exam
2. Identification

## Awards

Awards will be presented to individuals and the first team based on their rankings at the CDE awards ceremony at the New Jersey State FFA Convention. Awards are sponsored by the New Jersey FFA Foundation, Inc., the New Jersey State FFA Association, and/or the National FFA Organization.

#### Individual

- Overall Medals
  - Medals – Top three individuals
- H.O. Sampson Certificates (hands-on practicum areas ONLY)
  - Certificate – Top five individuals

#### Team

- Banner Sponsored by the New Jersey FFA Association - 1<sup>st</sup> place

This is a state-level event; therefore, the first-place team will not advance to further competition.

## SCHOLARSHIP OPPORTUNITY

If offered in a given year, the three highest scoring individuals in the Turf Management Career Development Event will be eligible for scholarships at Rutgers University if they are accepted and enroll in either the Twenty Week Turf Management Program or as a four-year Rutgers, School of Environmental and Biological Science student with a Turf-grass Management major. The scholarship would be applied towards first year tuition.

### **Turf Management Career Development Event -Scholarship Policy** (Effective November 2008)

The Turf Management Career Development Event provides the opportunity for the students to receive college scholarships to attend the Turfgrass Science Program at Rutgers. Currently the scholarships are available to individuals who place 1st-3rd in the event, regardless of how the team places. In an effort to encourage the study of Turfgrass Science in college, an exception will be made for an individual on a 1st place team who didn't rank 1st-3rd individually. The new policy will allow an individual from a 1st place Turf Management team to compete in the event again, but only as an individual. This participation will not affect the team rank. The student must be dues paid members from a chapter in good standing and will be eligible for individual medals and certificates. The student is limited to one attempt to compete as an individual for the scholarship

## References

*This list of references is not intended to be all-inclusive.*

- Christians and Agnew, The Mathematics of Turfgrass Maintenance (3rd Edition), University of Massachusetts.
- Compendium of Turfgrass Diseases 3rd edition. Smiley, Dernoeden, Clarke 2005. APS Press ISBN 0-89054-330-5
- Cooper, Elmer L., Agriscience Fundamentals & Applications, Delmar Publishers, Inc. 1990.
- Emmons, Turfgrass Science and Management (2nd edition), Delmar Publishers, Inc. 1995.
- Ingels, Landscaping: Principles and Practices (5th edition), Delmar Publishers, Inc., 1997.
- "Landscape, Lawn Care & Golf Course Management" CD-ROM, National Council for Agricultural Education, 2001.
- Schroder and Sprague, Turfgrass Management Handbook (4th edition), Interstate Publishers, Inc. 1994.
- Smith, Ortho Problem Solver (4th edition), Chevron Chemical Co., 1994.
- Turgeon and Giles, Turfgrass Management, Prentice-Hall, Inc. 1991.
- Watschke, Dernoeden and Shellar, Managing Turfgrass Pests, Lewis Publishers, 1995.
- Uva, R.H., Neal, J.C., & DiTomaso, J.M. (1997). Weeds of the Northeast. Cornell University Press, Ithaca, New York.

## Request for Reasonable Accommodations

The New Jersey FFA Association is committed to providing equal access to our events and activities for all people. Use this form to request a reasonable accommodation or assistance at least 3 weeks before any state-level events: <https://form.jotform.com/NJFFA/accommodations-request>. A new form will need to be submitted for each event in which a reasonable accommodation is being requested. This information will be kept confidential and will be used only to process the request. Our staff will review the request upon receipt and contact the requestor with additional information. The association cannot guarantee accommodations or assistance if a form is received less than 3 weeks before an event. Accommodations being requested that require the assistance of another person (nurse, interpreter, scribe, reader, etc.) is the responsibility of the school/requestor. It is also the school/requestor's responsibility to provide any approved equipment to aid in the accommodation process, if applicable.

# Turf Management and Related Careers

## CAREER OPPORTUNITY

Career Clusters

- Agriculture, Food & Natural Resources
- Business Management & Administration
- Marketing
- Finance
- Science Technology, Engineering & Mathematics
- Education & Training

## CAREER OPPORTUNITY FOUND IN THE CAREER CLUSTERS

Agricultural, Food & Natural Resources

- Greens Keeper
- Landscaper
- Sod Production Specialist

Marketing

- Landscape Contractor
- Turf Product Sales
- Equipment Sales

Finance

- Lawn and Turf Care Services

Science Technology, Engineering & Mathematics

- Plant Taxonomist
- Turfgrass Research Technicians

Education & Training

- Landscape Photographer
- Postsecondary Educator

## SAE OPPORTUNITIES

- Employment at a golf course working on the lawns
- Employment at a lawn care business
- Open own business in lawn care
- Employment at a sod/turf farm

## EDUCATIONAL REQUIREMENTS / OPPORTUNITIES

- **Associate Degree and/or industry training**
  - Landscaper
  - Home Lawn Maintenance
- **Bachelor Degree**
  - Greens Keeper
  - Landscape Contractor
- **Graduate Degree**
  - Plant Ecologist
  - Plant Taxonomist
  - Postsecondary Educator

## PROFICIENCY AWARD AREAS

- Turf Grass Management
- Agriculture Sales and/or Services
- Diversified Horticulture

# Phase II Identification

## 100 POINTS

### Insects, Diseases, Turf Species, Physical Disorders, Weeds and Equipment List

#### Physical Disorders

- 101. Chemical burn
- 102. Drought stress
- 103. Mower Scalping

#### Insects

- 104. Billbug
- 105. Chinch Bug
- 106. Cutworm
- 107. Grubs
- 108. Sod Webworm

#### Weeds

- 109. Annual Bluegrass
- 110. Black medic
- 111. Broadleaf plantain
- 112. Buckhorn plantain
- 113. Canada Thistle
- 114. Carpetweed
- 115. Cinquefoil
- 116. Common chickweed
- 117. Common groundsel
- 118. Crabgrass
- 119. Dandelion
- 120. Foxtail
- 121. Goosegrass
- 122. Ground Ivy
- 123. Henbit
- 124. Knotweed
- 125. Mouse Ear Chickweed
- 126. Nimblewill
- 127. Pennsylvania smartweed/Ladysthumb
- 128. Poa trivialis
- 129. Purslane
- 130. Quackgrass
- 131. Red sorrel
- 132. Spurge
- 133. Velvetgrass
- 134. White clover
- 135. Wild Garlic/Onion
- 136. Yellow Nutsedge
- 137. Yellow Woodsorrel (Oxalis)

#### Turf Species

- 138. Bentgrass
- 139. Bermuda grass
- 140. Annual Ryegrass
- 141. Buffalo grass
- 142. Fine Fescue
- 143. Kentucky Bluegrass
- 144. Perennial Ryegrass
- 145. Tall Fescue
- 146. Zoysia grass

#### Diseases

- 147. Brown Patch
- 148. Dollar Spot
- 149. Fairy Ring
- 150. Leaf Spot
- 151. Powdery Mildew
- 152. Pythium Blight
- 153. Red Thread
- 154. Rust
- 155. Stripe Smut

#### Equipment

- 156. Aerator
- 157. Cup Cutter
- 158. Broadcast Spreader
- 159. Drop Spreader
- 163. Overseeder
- 164. Reel Mower
- 165. Respirator
- 166. Rotary mower
- 167. Rototiller
- 168. Sod Cutter
- 169. Spray Nozzle
- 170. Sprayer
- 171. String Trimmer
- 172. Thatcher
- 173. Fungicide
- 174. Herbicide
- 175. Fertilizer

# Phase IV- Part 1- Site Evaluation Sheet

NAME \_\_\_\_\_ CHAPTER \_\_\_\_\_

**Directions:** First determine the total square footage of the plot. Record your square footage in the box below. Using the “Exam” section of your scantron sheet, evaluate the plot according to the following areas. If the answer is “Yes” enter it as “A”, if the answer is “No”, enter it as “B” on the scantron sheet. Each choice given below must have either the “Yes/A” or the “No/B” box filled in. Some sections may have more than one “yes/A” box filled in.

**TOTAL SQUARE FEET** (25 points) \_\_\_\_\_

## YES (A) NO (B)

### GRASS TYPE

- 1. ANNUAL BLUEGRASS
- 2. BENTGRASS
- 3. FINE FESCUE
- 4. KENTUCKY BLUEGRASS
- 5. PERENNIAL RYEGRASS
- 6. TALL FESCUE

### THATCH THICKNESS (only one “yes” the rest “no”)

- 7. LESS THAN 1”
- 8. 1”-2”
- 9. MORE THAN 2”

### AVAILABLE SUNLIGHT (one “yes” the rest “no”)

- 10. 100% SUN
- 11. 75% SUN
- 12. 50% SUN
- 13. 25% OR LESS SUN

### WATERING PRACTICE

- 14. PROPER

### SOIL pH

- 15. PROPER

### MOWING

- 16. PROPER

### NITROGEN FERTILITY (only one “yes” the rest “no”)

- 17. ADEQUATE
- 18. EXCESSIVE
- 19. INADEQUATE

### INSECT DAMAGE

- 20. CINCH BUGS
- 21. GRUBS
- 22. SOD WEBWORM
- 23. NONE ACTIVE

### SOIL TEXTURE (CLOSEST) (only one “yes” the rest “no”)

- 24. CLAY
- 25. CLAY LOAM
- 26. LOAM
- 27. SAND
- 28. SANDY LOAM

### WEEDS

- 29. BROADLEAF PLANTAIN
- 30. BUCKHORN PLANTAIN
- 31. COMMON CHICKWEED
- 32. CRABGRASS
- 33. DANDELION
- 34. FOXTAIL
- 35. GOOSEGRASS
- 36. KNOTWEED
- 37. MOUSEAR CHICKWEED
- 38. NIMBLEWILL (NIMBLEWEED)
- 39. PURSLANE
- 40. SPURGE
- 41. THISTLE
- 42. WHITE CLOVER
- 43. WILD GARLIC/ ONION
- 44. YELLOW NUTSEDGE
- 45. YELLOW WOODSORREL (OXALIS)

### DISEASES PRESENT

- 46. BROWN PATCH
- 47. DOLLAR SPOT
- 48. LEAF SPOT
- 49. RED THREAD
- 50. RUST

**TOTAL SQUARE FEET SCORE** \_\_\_\_\_ **(25 PTS)**

CORRECTED BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_



## SAMPLE - Phase IV- Part II- Turf Problem Solving

NAME \_\_\_\_\_ CHAPTER \_\_\_\_\_

Customers mentioned that they had a very bad Crabgrass problem last summer and would like to not have the same problem next year.

1. What type of chemical should be used for this problem?
  - A) Post emergent herbicide
  - B) Non-selective herbicide
  - C) Pre-emergent herbicide
  - D) Broadleaf herbicide
2. What time of year should this application take place?
  - A) Late Fall
  - B) Late Summer
  - C) Early Spring
  - D) Early Fall
3. Your plan is to apply Dimension 2EW Sepcialty Herbicide at 1.5 pints/ 43,560ft<sup>2</sup>. The customer's lawn is 27,600 ft<sup>2</sup>. How much product will be needed for this application? (Rounded to the tenth of a fluid ounce)
  - A) 24.1 floz.
  - B) 15.2 floz.
  - C) 19.9 floz.
  - D) 41.3 floz.
4. The product cost \$152.00 for a half gallon bottle. How much will the application cost you? (Round to the nearest dollar)
  - A) \$15
  - B) \$24
  - C) \$36
  - D) \$95
5. Your sprayer is set up to spray 1.5 gallons per 1000 ft<sup>2</sup>. How many gallons of spray solution will be needed for this application? (Round to the nearest gallon)
  - A) 15 gal.
  - B) 27 gal.
  - C) 41 gal.
  - D) 95 gal.



**HORTICULTURE**  
**CDE# 105482**

Incorrect Marks    Correct Mark  
 X          

Team Name \_\_\_\_\_  
 This sheet is for demonstration and practice only. You must use a real scan sheet for actual competition.

Team Number	State	Last Name	First Name
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20	4132	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4132	20
21	4213	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4213	21
22	4231	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4231	22
23	4312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4312	23
24	4321	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4321	24

Team Activity	
Team	Ind.
0 0 0 0 0 0 0	
1 1 1 1 1 1 1	
2 2 2 2 2 2 2	
3 3 3 3 3 3 3	
4 4 4 4 4 4 4	
5 5 5 5 5 5 5	
6 6 6 6 6 6 6	
7 7 7 7 7 7 7	
8 8 8 8 8 8 8	
9 9 9 9 9 9 9	

Practicums (Judges)					
1	2	3	4	5	6
0 0 0 0 0 0 0					
1 1 1 1 1 1 1					
2 2 2 2 2 2 2					
3 3 3 3 3 3 3					
4 4 4 4 4 4 4					
5 5 5 5 5 5 5					
6 6 6 6 6 6 6					
7 7 7 7 7 7 7					
8 8 8 8 8 8 8					
9 9 9 9 9 9 9					

Assessment and Solution					
1 A B C D 6 A B C D 11 A B C D 16 A B C D 21 A B C D					
2 A B C D 7 A B C D 12 A B C D 17 A B C D 22 A B C D					
3 A B C D 8 A B C D 13 A B C D 18 A B C D 23 A B C D					
4 A B C D 9 A B C D 14 A B C D 19 A B C D 24 A B C D					
5 A B C D 10 A B C D 15 A B C D 20 A B C D 25 A B C D					

**Problem Solving**

Exam	
1 A B C D 26 A B C D	
2 A B C D 27 A B C D	
3 A B C D 28 A B C D	
4 A B C D 29 A B C D	
5 A B C D 30 A B C D	
6 A B C D 31 A B C D	
7 A B C D 32 A B C D	
8 A B C D 33 A B C D	
9 A B C D 34 A B C D	
10 A B C D 35 A B C D	
11 A B C D 36 A B C D	
12 A B C D 37 A B C D	
13 A B C D 38 A B C D	
14 A B C D 39 A B C D	
15 A B C D 40 A B C D	
16 A B C D 41 A B C D	
17 A B C D 42 A B C D	
18 A B C D 43 A B C D	
19 A B C D 44 A B C D	
20 A B C D 45 A B C D	
21 A B C D 46 A B C D	
22 A B C D 47 A B C D	
23 A B C D 48 A B C D	
24 A B C D 49 A B C D	
25 A B C D 50 A B C D	

**Site Evaluation**

Exam 2/Team	
1 A B C D	
2 A B C D	
3 A B C D	
4 A B C D	
5 A B C D	
6 A B C D	
7 A B C D	
8 A B C D	
9 A B C D	
10 A B C D	
11 A B C D	
12 A B C D	
13 A B C D	
14 A B C D	
15 A B C D	
16 A B C D	
17 A B C D	
18 A B C D	
19 A B C D	
20 A B C D	
21 A B C D	
22 A B C D	
23 A B C D	
24 A B C D	
25 A B C D	

**Written Exam**

